

Education and Examination Regulations

Civil Engineering and Management

Construction Management and Engineering

2019-2020

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Introduction

This document is the Students' Charter CEM / CME, hereinafter referred to as SC-CEM/CME, and consists of the following:

- Study Guide CEM / CME
- Master version of the UT Education and Examination Guideline (OER: articles 1 to 8)
- Programme-specific appendix for the master's programmes Civil Engineering and Management, and Construction Management and Engineering
 - Programme-specific appendix to the Education and Examination Regulations
 - Rules and Guidelines of the examination board

Rights can be derived from the SC-CEM/CME by the faculty as well as by the students of the programme for which the student has enrolled. This does not apply with respect to all other written and electronic publications, such as:

- The information on the websites of the programmes: www.utwente.nl/cem and www.utwente.nl/cme (except SC-CEM/CME)
- The study catalogue of the UT: <http://osiris.utwente.nl/student/OnderwijsCatalogus.do>
- Brochures and manuals

The SC-CEM/CME is published on the website of the programme. A printed version will be made available free of charge upon request.

In situations not covered by the SC-CEM/CME a decision will be made by the dean or by the examination board, depending on the responsibilities defined by law. The same applies in the event of (alleged) ambiguity, inconsistencies, differences in interpretation and/or (apparently) conflicting texts. The dean or the examination board will inform the involved examiner(s) and/or the student(s) of the decision.

In cases in which strict application of the SC-CEM/CME would cause clearly unintended or unreasonable situations, the examination board, the dean or the programme director can deviate from the regulations, provided that this does not have any negative effects for the student. This decision must be motivated in writing and must be communicated to the student, the examination board, the dean, the programme director and Bureau of Educational Affairs (BOZ).

Articles in this regulation refer to this SC-CEM/CME. If an article refers to legislation, the reference is to the Higher Education and Research Act, unless stated otherwise.

Reference: ----

Enschede, ---- 2019

Prof. dr. G.P.M.R. Dewulf

Dean of the Faculty of Engineering Technology

Practical Information

Education Organisation

Dean of the Faculty	<i>Prof. dr. G.P.M.R. Dewulf</i>
Programme director	<i>Prof. Dr. ir. J.I.M. Halman</i>
Programme coordinator	E.M. Blokhuis, MSc
Study adviser	<i>Ir. M.J.B. Duyvestijn</i>
Bureau of Educational Affairs (BOZ)	BOZ-CE-CES@utwente.nl

Programme Committee (OLC)

The Education Committee is responsible for monitoring and approving of the content as mentioned in WHW art. 9.18, and quality of the programmes of Civil Engineering. In the Education Committee both scientific staff and students are equally represented.

Chair: *Prof. dr.ir. K.T. Geurs*

Bureau of Educational Affairs (BOZ) acts as register for the Education Committee

Study Association

ConceptT (www.concept.utwente.nl)

Facilities

1. For all communication connected to the programme as well as in all administrative procedures Canvas, internet or intranet will be used. The University of Twente is using an electronic learning environment. In the organization of the programmes CEM and CME the assumption is that students are in possession of a laptop. Engineering Technology students can use the offer of the Notebook Service centre (NSC) for this purpose. Via their laptop, students can use the network of the university, which provides access to Canvas, the internet and intranet.
2. Use of computer and network facilities for other purposes than study may be regarded as misuse.
3. When they first enrol with the University of Twente, each student will be provided with an individual student email account.
4. The programme Civil Engineering employs a site on the electronic learning environment. All electronic communications by the programme will be conveyed via this site. All students are requested to enrol for this programme site from the start of their study.
5. The university has lecture rooms and tutorial rooms, facilities for guided and independent self-study, a library, and research facilities for educational purposes. The university offers limited facilities for free computer access.
6. The programme will provide accommodation to the study association for their activities.
7. Misuse of or damage to facilities of the University of Twente, or misconduct can, in addition to leading to claims for compensation, lead to a decision by the dean to temporarily exclude the student from participation in the programme, tests, exams and examinations.
8. Books and journals relevant to CEM and CME can be found in the Central Library of the UT. Regulations concerning the quantity of books on loan, the lending period and fines are determined by the University Library
9. If excursions, work visits, field work, etc. are a part of the programme (either compulsory or optional) that students are expected to take part in, the maximum contribution to the costs per student per excursion will be 10 euro, for a maximum of 4 excursions per year. Any costs exceeding this will be for the account of the university. If the above activities take more than one day, the programme will take care of proper accommodation.

Education Systems

- The University of Twente uses an electronic learning environment (Canvas <http://canvas.utwente.nl>). Canvas is filled per course and contains detailed course information, assignments, etc.
- The University of Twente uses a student information system (Osiris, <http://osiris.utwente.nl/student>). Osiris contains information on the programme and global course information. It is used for exam registration and for the registration of grades.

Quality Assurance

Quality Assurance involves carrying out the following activities on an annual basis:

- Digital questionnaires (Inquiries) at the end of every quarter
These inquiries are taken by the partaking students at the end of every quarter for every course.
- Comprehensive course evaluation
Upon the request of the OLC, the programme coordinator performs (or gives instruction for) comprehensive evaluations of courses.
- Panel discussion
Panel discussions can be held each quarter with a selection of students who participated in the courses of that quarter.
- Yearly analysis of the results of the NSE (national student survey) and the NAE (national alumni survey)
- Performance Reviews
Results of activities stated in the first three items are brought to the attention of chair holders, to allow them to address these issues in their annual performance appraisals with all employees.
- Educational professionalization
Members of the scientific staff must have a (university) teaching qualification (Basis Kwalificatie Onderwijs) or given the opportunity to acquire/maintain this qualification.
- Occasional activities
If necessary, in addition to the activities mentioned above, further assessments are carried out (such as assessment of facilities, how time is spent, exit evaluations, surveys among alumni, etc.)

Student counselling during the master's programme

Student counselling is available during the master's programme. Students will be appointed to a track coordinator. The track coordinator is a staff member of the department of the preferred specialization or profile of the student.

The track coordinator can be consulted for content related questions and in case of study related problems.

The student counsellor of Civil Engineering (Monique Duyvestijn, BH-111) will support, if and when necessary, the track coordinators and can be consulted by master students as well.

Procedure for intake, planning and registration of the master's programme

- The student is responsible for setting up his/her own master's programme. The track coordinator (MSc-track coordinator) is available for consulting, e.g. in case of specific questions or exceptions.
- At the start of the master, the student can plan a meeting with the track coordinator for discussing the programme individually. The track coordinator can give advice on the content and suitability of courses within a profile, and checks whether the intended programme satisfies the conditions of one of the profiles. If there is any doubt, the track coordinator directs the student to the exam board. The intended programme is not yet processed formally by the Bureau of Educational Affairs (BOZ).
- During the master, the student is free to change one or more courses of the programme, provided that it still matches the requirements of one of the defined profiles.
- Around the start of the Preparation MSc-thesis course (i.e. 3 months prior to the start of the course preparation MSc thesis), the final master programme will be checked by the Office of Educational Affairs. In case the profile requirements are satisfied, the courses are recorded in the student's examination programme in Osiris.

Complaints.

Complaints about the (organization of the) programme can be sent to the programme director, the programme coordinator or the study association. Appeals, complaints and objections are possible via the Complaints Desk at Student Services (Vrijhof)

The Master programme's in short

Both programmes consist of courses of 5 EC each, with a study workload of 85 EC in all. The master thesis preparation is 5 EC and the final thesis is 30 EC. Together, the programme consists of 120 EC.

Below: course schedule for nominal programming

*The amount of ECs is determined in consultation with the track coordinator.

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Year 1	Courses (15 EC)	Courses (15 EC)	Courses (15 EC)	Courses (15 EC)
Year 2	Courses (15 EC)	Courses (10 EC)		
		Master thesis preparation (5EC)	Master thesis (30 EC)	

In the figure above the outline of a regular master's programme is given. The programmes and time tables will be published on the websites:

<http://www.utwente.nl/cem>

<http://www.utwente.nl/cme>

<https://rooster.utwente.nl>

Course information can be found via: <https://osiris.utwente.nl/student/OnderwijsCatalogus.do>

Explanation:

In each study period - called a quarter (kwartiel in Dutch) - several courses are offered. The regular study load for a quarter is 15 EC in a period of 10 weeks, in which an EC equals a time spent of about 28 hours.

Programme Specific Appendix to the EER for the Master's Programmes.

Civil Engineering and Management & Construction Management and Engineering

The rules set out in this Appendix are an addition to the Education and Examination Regulations for Master's Programmes at the University of Twente. This document concerns Civil Engineering and Management (CEM) - CROHO 60026, and Construction Management and Engineering (CME) – CROHO 60337 of the Faculty of Engineering Technology.

1. Content of the Programme and Associated Examination.

1.1 Objective of the programmes

The programmes CEM and CME both aim to offer such knowledge, skills and understanding in the area of Civil Engineering, as well as the subareas Business Administration and Public Administration, that graduates are qualified to enter into an independent profession at the master level.

1.2 Teaching methods

- **Lecture:**
A plenary meeting for students intended for the transfer of information.
- **Tutorial:**
A meeting (for a subgroup of the population) intended to enable students to process the course matter (also known as self-study).
- **Assignment:**
The execution of a design or research assignment.
- **Practical:**
A practical training in the sense of art. 7.13, section 2 item d of the WHW. This concerns the participation in an educational activity aimed at the acquisition of skills, such as making an assignment or a test design, carrying out tests and experiments, and taking part in field work or an excursion.
- **Project:**
Executing a design or research assignment as a team.
- **Colstruction**
Combination between a lecture and a practical.

1.3 Examinations

The programmes CEM and CME both require the following examination:

- The final master examination.

Refer to Appendix b for the rules concerning the composition of the programme.

The following abbreviations are used in the tables:

W	=	written exam
T	=	partial tests
GA	=	group assignment and/or oral presentation
IA	=	individual assignment and/or oral presentation
O	=	oral exam

For each part of an examination a description, the manner of testing, the composition of the final grade (including weighting factors), and the structure and exact schedule of the programme must be announced in advance. If it is not possible to publish this information on the website or to include it in lecturer notes, this information must be handed out as a summary at the start of the programme, or communicated via the ELO.

1.4 Master Courses

Course code	Course	Quarter	EC	Assessment
201800016	Advanced Research Skills in R&CE	2	5	IA
201800057	Advanced Soil Mechanics	4	5	O+GA
201800050	Building Information Modelling and 5D planning	2	5	GA+O
201800039	Building with Nature	4	5	W+GA/IA
201800047	Construction Industry Dynamics	2	5	O
201800029	Construction Process Management	2	5	W
201800045	Construction Supply Chain and Digitization	1	5	W+GA
201900075	Culture in Construction	4	5	to be determined (NEW)
201800031	Data Analysis in Water Eng. & Management	2	5	W+GA
201800044	Digital Technologies in Construction	3	5	O+IA
201800073	Experiments in Water Infrastructure	5	5	GA + IA
201800036	Geo Risk Assessment	3	5	GA+IA
201900035	GIS for Transport	1	5	to be determined (NEW)
201800038	Hydraulic Engineering	3	5	W+IA
201800019	Hydrological Modelling and Forecasting	2	5	W+GA
201800018	Hydrology	1	5	GA+IA
201800034	Infrastructure and Asset Management	4	5	W+GA
201800168	Infrastructure Maintenance Machines	4	5	W+GA
201800028	Legal & Governance Aspects	1	5	W
201800024	Long Waves and Tidal (morpho)dynamics	1	5	W+GA
201800027	Mathematical Physics of Water Systems	3	5	GA+IA+W
201800026	Morphology	2	5	IA+W
201800048	Procurement Strategies and Tendering	3	5	W+GA
201800070	Public Transport Modelling	3	5	W+GA
201900067	Python and Modelling	3	5	to be determined (NEW)
201800069	Rail Transport	2	5	W+GA
201800040	Research Methodology and Academic Skills	2	5	IA+GA
201800035	River Morphodynamics	4	5	W+GA/IA
201900188	River Flow Processes	1	5	W+GA/IA
201800025	Short Waves and Coastal Dynamics	1	5	IA+GA
201800051	Simulation & Optimization of Construction Proc.	3	5	GA+IA
201900067	Strategies for Water Security	3	5	to be determined (NEW)
201800053	Subsurface Infrastructure Engineering	4	5	GA+IA
201800043	Sustainability & Circularity in Civil Engineering	1	5	GA+IA
201800060	Sustainable Transport	4	5	IA
201800032	Systems Engineering in Construction	3	5	W+GA
201800052	Technology and Innovation in Road Construction	4	5	O+GA

201800063	Traffic Forecasting and Analysis	2	5	W+GA
201800065	Traffic Management	4	5	O+GA
201800064	Traffic Operations	1	5	W+IA
201800055	Transport Research Project	1	5	IA
201900034	Urban Resilience in a changing climate	3	5	to be determined (NEW)
201800046	Value Management	4	5	W+GA
201800033	Water and Climate	4	5	W+GA
201800017	Water Footprint Assessment	1	5	W+GA/IA
201800023	Water Quality	1	5	W+IA+GA
201800030	Water and Energy	2	5	IA+GA

2. Organization of the programme

2.1 Specializations

The CEM programme offers 4 profiles. Students specialize in one of the following directions by selecting a profile:

- Construction Management and Engineering with profiles:
 - Markets & Organization of Construction
 - Digital Technologies in Construction
- Transport Engineering and Management with profiles
 - Integrated Urban Transport
 - Transport and Logistics
- Water Engineering and Management with profiles
 - Integrated Water Management
 - River and Coastal Engineering
- Integrated Civil Engineering Systems
 - Civil Engineering Structures
 - Modelling and Forecasting
 - Sustainability
 - Smart Cities

CME has no specializations. Students can select either the profile 'Markets & Organization of Construction' or 'Digital Technologies in Constructions'.

A master's programme (120 EC) consists at least of:

- Courses with a study workload of 85 ECs
- The course 'Preparation MSc-Thesis' of 5 ECs
- A final Master Thesis of 30 EC.

Depending on the specialization and the profile the students gather at least 30 EC in profile courses. In addition, the student chooses profile electives, for which courses can be selected either within the profile or within CEM/CME (in consultation with the track coordinator). The students are free to choose 15 EC in free electives. This can be any course at the University of Twente or at a recognized (foreign) partner university. If a student exceeds the maximum of 15 EC for free electives, e.g. for an exchange semester, permission of the examination board must be requested.

Detailed information on the curriculum, mandatory courses for each specialization and profile can be found on the website of [CEM](#) and [CME](#).

Students with a Dutch academic higher education other than the Bachelor Civil Engineering can compensate their deficiencies (with a max of 15 EC) during their Master programme; however the courses they take to compensate their deficiencies are extracurricular and are on top of the 120 EC of the Master programme.

Students that enter the programme select their specialization and profile at the very start of the programme. They can consult the track coordinator of the corresponding specialization. The entire programme of the student must comply with the final qualifications ([Appendix 1](#)) of the Master Programme. The track coordinator is mandated by the Examination Board to approve an individual programme. When there is any doubt whether

an individual programme meets the final qualifications of the programme, the Track Coordinator can redirect the student to the Examination Board for approval of their programme.

2.2 Organization of practical exercises

Practical Exercises can be part of a course or a project. Generally, a student has one attempt per study year to fulfil such a practical exercise if it is part of the examination of a course/project. However, when a student is unable to do the practical exercise outside their control, the examination board will attempt to give the student another opportunity to do the assignments or the projects.

2.3 Number and order of the exams and practical exercises

For the number of exams and periods, see OER2019 articles 4.3, 4.4 and 4.5. Also see the [list above](#) to check the amount of exams and the type of exams per course.

The following applies in addition to/ as deviation of these rules:

- For scheduling of the written exams: One opportunity in the last two weeks of the quartile in which the course was offered, and a second opportunity in the subsequent quartile or in the examination period over the summer.
- For each examination other than written exams: the examiner assigned by the examination board for that part of the examination, will, prior to the start of teaching the course, establish a time for examination of that course, or a part of that course. This might mean that (part of) an examination can only be taken once in an Academic year.

With respect to the order of the exams and practical exercises the programme uses the following types of prior knowledge

Desired prior knowledge: The student is deemed to be familiar with the conceptual framework and the course matter or a comparable course

Necessary prior knowledge: The student is deemed to have passed a particular course or a comparable course. The teacher assumes that the student is familiar with the course matter of the course. The student might have trouble finishing the course successfully if they do not have the necessary prior knowledge.

Compulsory prior knowledge: The student must have passed a particular course or a comparable course (assessed by the Examination Board) before they are allowed to attend the course.

2.4 Studyload

The programme is a full-time programme.

2.5 Period of validity of passed examinations

See EER 2019 article 4.8

2.6 Order Requirements

- Some courses have an examination consisting of several parts. The examination of this course can only be passed when all separate parts are passed.
- The final examination of courses, or parts thereof cannot be taken before the completion of the BSc-programme or any Pre-Master programme (in Dutch referred to as the 'Harde Knip')

2.7. Requirements for the elective space of the programme and choices to be made.

In consultation with a teacher, students are allowed to select and specify a Capita Selecta as free elective. The composition, volume and assessment type is determined separately for each individual case.

If a student replaces more than 15 EC by a course or courses offered outside the faculty, he or she needs to seek approval by the examination board. Their programme is then a 'free programme' (see OER2019 art. 3.5).

3. Transition Regulations.

- For students that started between 2010 and 2017 the programmes described in the SC-CEM/CME from 2010 through SC-CEM/CME 2017 apply, including any applicable transition regulations. For the most recent transition regulations, please see [appendix 2](#).
- In the event of changes to the rules for the composition of an exam that consists of multiple results, the calculation of the final result/ the minimum grade for successful completion of a unit/the validity of the resit for the units will be determined based on the rules of the examination of the year in which the result was obtained.
- In the event of significant change to an existing course (more than 50% of the course matter), a student who has at least once taken part in an exam for the relevant course prior to the change, is entitled to two scheduled opportunities to resit the exam in its old form in the subsequent academic year. In such cases, the student must inform the teacher at least 20 working days before the date of the resit of their intention to exercise this right. In the event of such a change in the course matter, the students must be informed of this fact and this regulation.

If a student's programme, due to terminations and transition regulations, consists of a total number of ECs that does not exactly match the formal volume of the programmes and programme components mentioned in this programme-specific appendix, the programme is nevertheless assumed to have the volume of the formal programme.

The requirements for the composition of the programme apply for students enrolled for the Master's programme as from 01-07-2015. For students that enrolled before that date the examination programme must at least meet the requirements of the education and examination regulations of 2014 or the requirements of the present EER.

4. Language

The language of instruction of both Master programmes is English. Reports must be written in the language of instruction. In special cases (for the assessment of the Examination Board) deviation from the provisions is possible.

5. General regulations MSc thesis

5.1. Definition and terms

- The graduation period comprises of a total of 35 EC and consists of the preparation master thesis (5) and the master thesis (30 EC)
- The graduation lecturer is a professor, a senior lecturer (UHD) or a lecturer who is a member of the scientific staff of CE, assigned by the examination board, or an assigned professor of the department associated with the selected profile, who is responsible for providing guidance during the graduation period. The graduation supervisor is a staff member or research assistant of the UT who acts as the daily supervisor for the graduation assignment if this is not done by the graduation lecturer. If the graduation supervisor is a research assistant, the research proposal must be approved by the Civil Engineering Disciplinary Council.
- Professors from other programmes can be assigned by the examination board as a graduation lecturer in Civil Engineering. The examination board will decide in each individual case whether they honour the request, based on, among other things, the relationship between the graduation assignment and the professor's area of expertise.

5.2. Requirements for the preparation MSc-thesis and the MSc-thesis

- The purpose of the MSc-thesis preparation is to prepare the student for the realisation of the master thesis. The preparation phase results in a more detailed problem definition and a plan of approach for the MSc-thesis
- The preparation phase consists of optional courses and/or independent literature study in relation to the MSc-thesis.
- The MSc-thesis must be executed within the territory of one of the specializations of the programme either within a certain chair or at an external organization
- The student is the only author of the thesis
- The MSc-thesis is written in English. In consultation with the graduation lecturer or at the request of the external organization, a comprehensive summary and/or report appendices may be written in Dutch. In all cases the main text of the report must be in English.
- The MSc-thesis report can be drawn up as a scientific article if, at the moment of assessment, the student is the only author of the (draft) article. Contributions in writing of the graduation lecturer and/or the graduation supervisor to the MSc-thesis report are not allowed.

5.3. Guidance/Assessment

- The student starts their preparation by requesting a conversation with the MSc-thesis coordinator of the department.
- The coordinator selects a graduation lecturer. The graduation lecturer arranges for a graduation commission to be put together. If necessary he or she also arranges a daily graduation supervisor. When the MSc-thesis assignment is carried out externally, the graduation lecturer also makes sure that there is a person in charge at the external location for the guidance of the graduate.
- The graduation commission is responsible for the final assessment. The external supervisor just has an advisory role.
- The graduation commission exists of:
 - o The graduation lecturer
 - o The graduation supervisor, or
 - o A second staff member of the UT if the graduation lecturer = the graduation supervisor
 - o Possible external member for an advisory role in the assessment
- If the nature of the project warrants it, the graduation lecturer can extend the commission with eligible experts.
- At the request of the responsible chair, the examination board can make an exception to the requirements for the composition of the graduation commission.

5.4. When can a student start the graduation period?

The student can start with the preparation MSc-thesis course when all other parts of the master's programme except for a maximum of two courses (10 EC) have been completed. The student can only start the MSc-thesis after completion of the preparation course and with only 5 EC left open in courses. The graduation lecturer may, after consultation with the study adviser, deviate from these restrictions if it causes considerable loss of time for the student.

5.5 Monitoring the duration of the graduation period

- The planned end date of the MSc-thesis assignment is determined during the MSc-thesis preparation. At the beginning of the graduation period there need to be established agreements at least on the nature of the assignment, the planned start date the manned of guidance and the date on which the final report must be handed in.

- The duration of the MSc-thesis preparation corresponds with the applicable study-load of 5-10 EC. The duration of the MSc-thesis corresponds with the applicable study-load of 30 EC.
- All agreements (as mentioned above) are recorded in writing
- In the period leading up to the start of the MSc-thesis, desired adjustments to the MSc-thesis, in particular the problem definition, will only be implemented in consultation with the student. Therewith taking into consideration the possible (financial) consequences this may have for the student in the framework of the total duration and the limited funding resources available via student grants.
- The graduation lecturer and the graduation supervisor share the responsibility for explicit monitoring of progress during the graduation period.
- If the graduation report is handed in (preferably on the agreed date) and is approved, the graduation committee issues a statement that can be used by the student to apply for the final examination (for details: see the MSc-thesis guide for both programmes). If the report is not approved, the graduation committee indicates clearly what additions and/or changes are required. A new date is set on which the revised report must be handed in. If necessary, this procedure is repeated.
- If the graduation committee agrees that the work done by the student is insufficient, they may decide in consultation with the graduation coordinator of the department, that the student has to do another assignment. The same applies if the student fails to hand it in or hands it in far too late.

5.6 Joint graduation

In principal the MSc-thesis is done individually. However, joint graduation is possible. In that case, independent realization of the project is defined as"

- The student studies on an individual basis: each student has their own (sub)project with a separate research question and responsibility
- The graduation results in an individual report and individual presentation.

If an (external) client is only interested in a common end product, the supply of this report is the responsibility of the students.

For the exact procedure and correct registration of the MSc-thesis project, please read the MSc-thesis guide carefully before starting the process (available on Canvas and the website).

5.7 Procedures for the final examination

Make sure that an application for the final examination (colloquium) is requested with the Bureau of Educational Affairs (BOZ) at least three weeks prior to the planned graduation date.

Make sure that at least three weeks prior to the graduation date, the grades for all parts of the examination (except the MSc-thesis) must be handed into Bureau of Educational Affairs (BOZ)

Make sure that at least one week prior to the graduation date, the graduation report must be handed in to the Bureau of Educational Affairs (BOZ).

The Bureau of Educational Affairs prepares the certificate and makes it available to the chair of the committee prior to the graduation presentation.

Applications for the final examination in the second half of August must be submitted to the Bureau of Educational Affairs (BOZ) 5 weeks prior to the date of the final examination. All the periods mentioned exclude the holiday periods on the academic calendar.

6. Admission – additional provisions

- Persons within the meaning of OER 2019, art. 2.1a are admitted directly to the CEM and CME programmes. All other persons can be admitted when the admission board gives a positive advice on admission after application.

The admission board will make a positive decision:

- o For students in possession of a bachelor degree from a university of applied sciences (HBO) who have successfully passed the pre-master's programme. The pre-master's programme has a volume of 30 EC. The detailed realization of the regulations of the pre-master programme can be found on Canvas and the website, or via the Pre-Master coordinator.
- o For students who come from a different Bachelor programme within the UT or within the Netherlands, and who passed their Pre-Master programme (more information with the Pre-Master coordinator and the Pre-Master policy on the website)
- o For students in possession of a non-Dutch Bachelor degree at the right level (to be determined by one of the committee officers), who also meet the requirement for the command of English (see OER2019 art.2.2).
- There are two intake moments per year, when students can enter CEM/CME. These moments allow students to complete their programme in two years, without suffering any delay caused by timetable issues.
- Each year, the dean, who mandated the admission board, defines for each UT bachelor degree if it gives access to the CEM and CME programmes. Admission may be subject to further requirements or restrictions. Students from the Bachelor programmes CE and ME at the University of Twente are directly admissible into the programme.

6.1. Admission procedure

- Potential students must submit an admission request to the admission board. Students not yet enrolled as a student at the UT must use the preliminary enrolment forms which can be found on the UT graduate site: **[Http://master.utwente.nl](http://master.utwente.nl)**. Students who are enrolled with the UT, but not with B-CE must submit an admission request to the CEM/CME admission board. Students who are enrolled with B-CE do not need to submit an admission request if they are in possession of the B-CE certificate at the start of their CEM/CME programme.
- The admission board assesses whether the candidate can be admitted and informs them of their decision in writing. If the admission board admits a student, the student is assigned a track coordinator. The track coordinator can be consulted for information on the content and structure of the master's programme.
- An appeal against the decision of the admission board is possible in accordance with OER2019 art.8.6.

6.2. Pre-Master programme

- Students with a degree from a University of Applied Sciences (HBO) in Civil Engineering (or comparable) can do a half year long pre-Master's programme worth 30 EC. Please check the website for information.
- Students can only be admitted after completion of the full pre-Master's programme within a maximum of a year.
- Students that would like to enter the 4TU CME programme after completion of the pre-Master's programme, have to do the complete pre-Master's programme at 1 location.

6.3. Intake of students with a University Education

- Students with a university education and a deficiency of no more than 15 EC can compensate their deficiencies in the first quartile of the Academic Year. After completion, the students can be admitted into the Master programme
- Students with an university education and a deficiency of more than 15 EC are not admitted into the programme directly and have to do a Pre-Master programme.

7. Definition of terms for Civil Engineering and Management

BOZ-CE	Bureau of Educational Affairs Civil Engineering
CE:	Civil Engineering department of the Faculty of Engineering Technology
Deficiency:	Shortcomings in the previous education as established by the examination board, that need to be corrected in order to allow the student to successfully complete the programme in 2 years
ELO:	The electronic learning environment website that supports the programme for a specific examination or course (generally Canvas)
Faculty:	The Faculty of Engineering Technology of the University of Twente
Programme director:	The programme director of the programmes CEM and CME.
Pre-master's programme:	Programme to be completed by students with a degree from universities of applied sciences before they are admitted to the CEM or CME master's programme
Admission board:	Board consisting of the programme director, the master programme coordinator, the track coordinators and the pre-master coordinator. The board is responsible for handling requests for admission by <ol style="list-style-type: none">Students from universities of applied sciences (HBO) or students with another Dutch degree than the UT B-CE programme. In daily practice, the responsibility of this task of the admission board is with the pre-master coordinator.Students with a bachelor's degree from universities abroad. In daily practice, the responsibility of this task of the admission board is with the master programme coordinator
Track coordinator:	Member of the scientific staff responsible for providing advice on, and establishing the master's programme, including any deficiencies.
Website:	The websites www.utwente.nl/cem or www.utwente.nl/cme

Appendix 1. Final Qualifications CEM/CME

1a. CEM

3TU Academic criteria (Meijers' Criteria)	Description of the Learning Outcomes MSc programme CEM
1) Competent in one or more scientific disciplines	<ul style="list-style-type: none"> ▪ The graduate has expert knowledge on at least one of the subareas of Civil Engineering and Management mentioned below, is able to apply this knowledge and is able to maintain and expand his or her expertise in the field of Civil Engineering and Management: <ul style="list-style-type: none"> - Construction Management and Engineering; - Transport Engineering and Management; - Water Engineering and Management. <p style="margin-left: 40px;">This includes necessary knowledge of related fields, such as Mathematics, Physics, Business Administration and Public Administration.</p> ▪ The graduate is able to combine appropriate theories from Business and/or Public Administration with technical knowledge and apply this in an integral way within civil engineering systems, projects or processes in one of the subareas above.
2) Competent in doing research	<ul style="list-style-type: none"> a) The graduate is able to identify gaps in scientific knowledge within a subfield of Civil Engineering and Management. b) The graduate is able to formulate research problems and is able to produce and carry out a research plan by applying an appropriate research methodology, analysing and discussing the results and drawing conclusions from the results. c) The graduate is able to contribute to acquiring scientific knowledge. d) The graduate understands the potential benefits of research and is able to understand and incorporate the results of research into his or her own work. e) The graduate is able to assess research within a subfield of Civil Engineering and Management on its scientific value.
3) Competent in designing	<ul style="list-style-type: none"> ▪ The graduate is able to: <ul style="list-style-type: none"> i. Contribute to a functional design of complex constructions; or ii. Design management processes in the field of Civil Engineering; or iii. Make a functional design of measures to intervene in Civil Engineering Systems. <p style="margin-left: 40px;">This means that:</p> ▪ The graduate has creativity and synthetic skills with respect to design projects. ▪ The graduate is application-oriented towards civil engineering practice when designing. ▪ The graduate is able to find a balance between possible solutions of complex requirements, technical possibilities and genuine interests of the parties involved.
4) A scientific approach	<ul style="list-style-type: none"> a) The graduate has the habit of reflecting upon his or her own work and continuously uses relevant information to improve his or her capabilities. b) The graduate has the attitude to endorse his or her personal development and enhancing his or her expertise. c) The graduate is able to judge the value of information for decision making, makes effective use of this information for decisions and is able to evaluate these decisions. d) The graduate is able to judge if available tools and techniques are satisfactory for the problem at hand, is able to apply satisfactory tools and techniques and is able to invent his or her own tools, theories and techniques if these are not available. e) The graduate is able to develop a model to describe/schematize reality, i.e. the graduate is able to describe qualitatively civil engineering processes and objects in terms of basic principles and, where necessary and possible, is able to quantify this description in terms of mathematical relationships.

	<p>f) The graduate knows that models only approximate reality and is able to use them appropriately whenever this is beneficial.</p> <p>g) The graduate's scientific attitude is not restricted to the boundaries of Civil Engineering and Management, and he or she is able to cross these whenever necessary.</p>
5) Basic intellectual skills	<p>a) The graduate is able to work independently.</p> <p>b) The graduate is able to work systematically and methodically.</p> <p>c) The graduate is able to analyse complex problems and complex information thoroughly and systematically, is aware of analogies between problems and is able to determine connections between different aspects of the problem or information.</p> <p>d) The graduate is competent in numeracy and is aware of orders of magnitudes.</p> <p>e) The graduate is able to reflect on the complete scope of one of the subfields of Civil Engineering and Management and is able to generate novel ideas in this subfield.</p>
6) Competent in cooperating and communicating	<p>a) The graduate is able to work effectively in the context of a multidisciplinary environment, is able to manage complex assignments and can act in different roles depending on the situation, i.e. can take responsibility as a member and/or as a project leader.</p> <p>b) The graduate knows the importance of oral and written communication, and can make effective use of them, which means that:</p> <ol style="list-style-type: none"> i. The graduate is capable of collecting and selecting relevant scientific information. ii. The graduate is skilled in properly documenting and presenting results of scientific and design work, including the underlying knowledge, choices and considerations, to colleagues and to a broader public. iii. The graduate is competent in scientific reasoning. iv. The graduate adheres to existing academic conventions, such as giving proper credit and referencing.
7) Takes account of the temporal and societal context	<p>a) The graduate is able to position the (scientific research of) at least one of the subfields in the scientific and societal context.</p> <p>b) The graduate is able to form an opinion or judgement and contribute to discussions about complex matters related to Civil Engineering and Management.</p> <p>c) The graduate knows that compromises are unavoidable and is able to deal with them effectively.</p> <p>d) The graduate is aware of the disadvantages for society of certain decisions and knows how to communicate them to the relevant parties (stakeholders).</p>

1b. CME

3TU Academic Criteria	Description of the Learning Outcomes MSc Programme CME
1. Competent in one or more scientific disciplines	<ul style="list-style-type: none"> ▪ The graduate has knowledge on the following sub-areas of Construction Management and Engineering, is an expert in at least one of them and is able to maintain and expand his expertise in the field of Construction Management and Engineering (for instance, by consulting relevant literature but also look for connections). <ul style="list-style-type: none"> ○ Project and Process management in the field of Construction Engineering (i.e. complex constructions, large-scale infrastructure, urban developments) ○ Legal and Governance aspects in the field of Construction Engineering ○ Markets and organisations in the field of Construction Engineering ○ Innovations and Integral Design in Construction Engineering ▪ The graduate is able to combine management theory and technical knowledge. This ability covers the knowledge and application of technical process management and innovation regarding construction and engineering processes in the subareas above.
2. Competent in doing research	<ul style="list-style-type: none"> ▪ The graduate has the competence to acquire new scientific knowledge through research or systematic reflection. ▪ He understands the potential benefits of research and is able to understand and incorporate the results of research into his own work.

<p>3. Competent in designing</p>	<ul style="list-style-type: none"> ▪ The graduate is able to <ul style="list-style-type: none"> ○ Contribute to a functional design of complex constructions or ○ Design management processes in the field of Construction Engineering This means that: <ul style="list-style-type: none"> ▪ The graduate has creativity and synthetic skills with respect to design projects ▪ The graduate is application-oriented towards the construction industry when designing constructions or management processes ▪ The graduate is able to translate technological concepts and developments into appropriate process innovations for construction. ▪ The graduate is able to find a balance between possible solutions of complex requirements, technical possibilities, genuine interests of the parties involved and justified value creation on scientific and operational levels
<p>4. A scientific approach</p>	<ul style="list-style-type: none"> ▪ The graduate has the habit of reflecting upon his own work and continuously uses relevant information to improve his capabilities. ▪ The graduate has the attitude to endorse his personal development and enhancing his expertise. ▪ The graduate knows that models only approximate reality and is able to develop and use them adequately whenever this is beneficial ▪ The graduate makes decisions based on calculated risks, costs, time, quality, stakeholders' participation, value creation, legislation and is able to evaluate these decisions ▪ The graduate's scientific attitude is not restricted to the boundaries of Construction Management and Engineering, and he is able to cross these where and whenever necessary
<p>5. Basic intellectual skills</p>	<ul style="list-style-type: none"> ▪ The graduate is able to work independently ▪ The graduate is able to work systematically and methodically ▪ The graduate is able to reflect on the complete scope of Construction Management and Engineering issues, to critically analyse and to generate novel ideas. ▪ The graduate is able to invent his own tools, theories and techniques if these are not available
<p>6. Competent in cooperating and communicating.</p>	<ul style="list-style-type: none"> ▪ The graduate is able to work effectively in the context of a multidisciplinary environment, is able to manage complex assignments and can act in different roles depending on the situation, i.e. can take up responsibility as a member and/or as a project leader. ▪ The graduate knows the importance of oral and written communication, in particular in English, and can make effective use of these, this means that: <ul style="list-style-type: none"> ○ The graduate is skilled in properly documenting and presenting results of scientific and design work, including the underlying knowledge, choices and considerations, to colleagues and to a broader public. ○ The graduate is competent in reasoning ○ The graduate adheres to existing academic conventions, such as giving proper credit and referencing.
<p>7. Takes account of the temporal and societal context</p>	<ul style="list-style-type: none"> ▪ The graduate is able to form an opinion or judgement and contribute to discussions about complex matters related to Construction Management and Engineering ▪ The graduate knows that compromises are unavoidable and is able to effectively deal with these. ▪ The graduate is aware of the disadvantages for society of certain decisions and can communicate these to the relevant parties (stakeholders). He can take the purpose of the design and its context into consideration.

Appendix 2. Master courses replacement table as of 2018-2019

Courses for the tracks Water Engineering & Management

Water Engineering & Management				
New Course	Previously Known as	EC	Q	Lecturer
Hydrology	Hydrology (7,5 EC)	5	1	M.J. Booij
Long Waves and Tidal Morphodynamics	Combination of parts of Water Systems and Marine Dynamics	5	1	G.C. Campmans
River Flow & Sediment Transport	Combination of parts of Water Systems and River Dynamics	5	1	B. Vermeulen
Short Waves and Coastal Dynamics	Combination of parts of Water Systems and Marine Dynamics	5	1	B.W. Borsje
Water Footprint Assessment	Water Footprint Assessment	5	1	A.Y. Hoekstra
Water Quality	Part of Water systems	5	1	D.C.M. Augustijn
Advanced Research Skills in River & Coastal Engineering	Part of Morphology	5	2	S.J.M.H. Hulscher
Data Analysis in Water Engineering & Management	Data Analysis in Water Eng. & Mgmt (7,5 EC)	5	2	K.M. Wijnberg
Hydrological Modelling and Forecasting	New (based partially on parts of Hydrology)	5	2	M.J. Booij/J.C.J. Kwadijk
Morphology	Morphology	5	2	S.J.M.H. Hulscher
Water and Energy	New	5	2	R. Wang
Hydraulic Engineering	Hydraulic Engineering	5	3	J.J. Warmink
Mathematical Physics of Water Systems	Mathematical Physics of Water Systems	5	3	P.C. Roos
Regional Flood Management	New (partially based on Design Project Water II)	5	3	M.S. Krol
Water Management and Governance for Engineering	Integrated Water Management	5	3	M.F. Brugnach
Building with Nature	New	5	4	E.M. Horstman
River Morphodynamics	Combination of parts of Water Systems and River Dynamics	5	4	B. Vermeulen
Urban Water Management	New (partially based on Integrated Water Management)	5	4	M.F. Brugnach
Water and Climate	New (partially based on Tools for Water Policy analysis)	5	4	J.C.J. Kwadijk
Pre-thesis	Pre-thesis	5	an	-
MSc thesis	MSc thesis	30	an	-

Courses for the tracks of Transport Engineering and Management:

Transport Engineering & Management				
New Course	Previously Known as	EC	Q	Lecturer
Modeling Consumer Behaviour	Transport Modeling	5	1	L.C. La Paix Puello
Operations Research Techniques	NEW	5	1	IEM
Planning and Process Management	Planning and Process Management	5	1	K.T. Geurs
Simulation	NEW	5	1	IEM
Choice Modelling	Transport Modeling	5	2	L.C. La Paix Puello
Data Science I	Data Science I	5	2	CSC
Geospatial Modelling	Land Use and Transport Interactions	5	2	ITC
Network Modelling	NEW	5	2	E.C. van Berkum
Rail Transport	Public Transport in Urban Areas	5	2	K.M. van Zuilekom
Traffic Forecasting & Analysis	Traffic Operations	5	2	T. Thomas
Data science II	Data science II	5	3	CSC
Land Use and Transport Interactions	Land Use and Transport Interactions (7,5 EC)	5	3	L.C. La Paix Puello
Mathematical Optimization	NEW	5	3	DMMP
Public Transport Modeling	Public Transport	5	3	K. Gkostliatis
Infrastructure Asset Management	Infrastructure Management	5	4	A. Hartmann
Network Equilibrium Analysis	Mathematical Optimization in Transport	5	4	E.C. van Berkum
Sustainable Transport	Sustainable Transport (7,5 EC)	5	4	K.T. Geurs
Traffic Management	Traffic Management (7,5 EC)	5	4	E.C. van Berkum
Traffic Operations	Traffic Operations (7,5 EC)	5	4	E.C. van Berkum
Transport Research Project	Transport Research Project	5	any	K.T. Geurs
Pre-thesis	Pre-thesis	5	any	-
MSc thesis	MSc thesis	30	any	-

Courses for the tracks of Construction Management & Engineering

Construction Management & Engineering				
New Course	Previously Known as	EC	Q	Lecturer
Construction Supply Chains & Digitalization	Supply Chain Management & ICT	5	1	J.T. Voordijk
Legal & Governance Aspects	Legal & Governance (7,5 EC)	7,5	1	P.J. Klok
Planning and Process Management	Planning and Process Management (7,5 EC)	5	1	K.T. Geurs/M. van Buiten
Sustainability & Circularity in Civil Engineering	Sustainable Building	5	1	J. Oliveira dos Santos
BIM & 5D planning	Building Information Modelling and 5D-planning	5	2	F. Vahdatikhaki
Construction Industry Dynamics	Markets, Organisation & Innovation in the CI	5	2	A.G. Dorée

Construction Process Management	Project management	5	2	L.Volker
Experiments in Water Infrastructure	New	5	2	J. Vink de Kruijf
Digital Technologies for Civil Engineering	New	5	3	A.M. Adriaanse
Procurement Strategies and Tendering	Procurement Strategies & Tendering (7,5 EC)	5	3	J. Boes
Simulation and Optimization of Construction Processes	New	5	3	F. Vahdatikhaki
Subsurface Infrastructure Engineering	New	5	3	L.L. Olde Scholtenhuis
Systems Engineering in Construction	Collaborative Design & Management	5	3	R.S. De Graaf
Infrastructure Maintenance Machines	New	5	4	A. Martinetti
Infrastructure Asset Management	Infrastructure management	5	4	A. Hartmann
Technology and Innovation in Road Construction	New	5	4	S.R. Miller
Value Management in Construction	Systems Engineering	5	4	R.S. De Graaf
Advanced Soil Mechanics	New	5	4	V. Magnanimo
Research Methodology & Academic Skills	Research Methodology & Academic Skills	5	any	A. Hartmann
Pre-thesis		5	any	Daily supervisor
MSc-thesis		30	any	Supervisors

Examination Board

Rules and regulations Civil Engineering and Management and Construction Management and Engineering

Rules of conduct and rules applicable to the exams and examinations of the examination board for the Civil Engineering and Management master's programme.

R1 The examination board

- R1.1 The composition of the board can be found in appendix RB2.
- R1.2 The responsibilities of the examination board of a programme apply to all courses that are part of the student's programme.
- R1.3 The examination board consists of at least three members, including two professors and an external member.
- R1.4 The executive board of the examination board consists of the president and the secretary of the examination board.
- R1.5 The examination board may be assisted by programme staff, e.g. the programme director, the programme coordinator, the study adviser, and supervisors. Depending on the subjects on hand these parties might attend the meeting in an advisory capacity. The examination board may decide to delegate authorities to the president or the secretary and to delegate the realization to the programme board, in so far as this is not in conflict with legislation or these rules.
- R1.6 The meetings of the examination board and of the executive board of the examination board are not open to the public, neither are the minutes of these meetings.
- R1.7 Where it concerns the implementation of the decisions taken by the examination board, the "examination board" refers to the: "executive board of the examination board".
- R1.8 If a member of the examination board is unable to attend a meeting of the examination board, he or she should assign a substitute.
- R1.9 The dean appoints the members of the examination board for four years. With a maximum of one reappointment. The dean shall appoint a president for a period of two years. The examination board can appoint a vice-president from its midst, who can replace the president at any time.
- R1.10 In cases that concern the examinations or the assessment of parts of examinations not covered by these regulations, a decision will be made by the examination board. In urgent situations a decision will be made by the executive board of the examination board.

R2 Authority to hold examinations

- R2.1 In general, the person who is primarily responsible for the course is also primarily responsible for the assessment of the results. The examination board uses the following criteria:
 - a Examinations can be held by permanent or temporary members of staff (lecturer/UD, senior lecturer/UHD, professor) of the UT who meet the teaching requirements and who are involved in the programme;

- b The authority is limited to the domain in which the staff member is recognized as an expert;
 - c Staff members of partner universities can also hold examinations, if they meet the stated requirements;
 - d In all other situations the examination board will decide whether a person is granted the authority to hold examinations.
- R2.2 For the purpose of holding the exams, the examination board appoints one or more examiners for each part of the examination. If there are multiple examiners for a course, responsibility is assigned to one of the examiners.
- R2.3 If the examination board does not explicitly assign another lecturer, the lecturer who is responsible for a course is deemed to have been assigned as the examiner.
- R2.4 A graduation committee is appointed for the assessment of the master thesis or final course. The composition requires the approval by the examination board. The UT supervisor is either full professor or senior lecturer/UHD. The daily supervisor is at least PhD-candidate with qualifier or lecturer/UD

R3 Starting point of the examination board

- R3.1 All organizational issues in connection with the programme are governed by the nominal programming. The examination rules stimulate study as a cohort, and try to prevent delays that disrupt the order in which the programme is offered.
- R3.2 In particular situations, explicitly defined in the education and examination regulations, the examination board has the authority to deviate from the education and examination regulations.
- The examination board might request the advice of the study advisers on decisions that affect individual students. Any information provided by the student shall be treated as confidential. The student's study plan and the known causes of study delay will be taken into consideration.
- R3.3 In such situations, the following applies with respect to section 2, the completion of the study is taken in consideration.

R4 Organization and form of exams and manner of testing

- R4.1 Each exam is an assessment of the student's knowledge, insight and skills, as well as an evaluation of the results of that assessment.
- R4.2 The questions and tasks of an exam will not exceed the programme objectives. These overall learning objectives will be outlined at the beginning of the programme, in preparation of the relevant exam. Before the start of teaching for the relevant part of the examination, the final volume and content of the course matter must be communicated in writing, and written study material for the relevant exam must be available to the student.
- R4.3 Before the start of the exam, the examiner submits a copy of the exam and standard that will be used to the programme director.
- R4.4 The description in programme-specific appendix A defines the manner of assessment for each course.
- R4.5 The student can ask the examination board for another testing method than the method determined in the first section of this article.

- R4.6 If the evaluation results warrant this, the examination board will review the quality of the exam.
- R4.7 If no representative mock and/or old exams are available, the lecturer must make a representative set of practice questions and a standard available.
- R4.8 If a course is assessed in parts, this must be announced no later than at the start of the course. The examiner indicates the weight in the final grade for each part, and how the final grade is calculated.

R5 Written and oral exams

- R5.1 A written exam has a maximum duration of 3 hours; the maximum for an individual oral exam is 1.5 hours. An oral exam taken as a group has a maximum duration of 4 hours.
- R5.2 Written exams are assessed on the basis of pre-defined standards for the various tasks or partial tasks of the exam.
- R5.3 The student is informed of the maximum score for a task in a written exam by adding this information to the task in the exam.
- R5.4 If it turns out, when the exam is held, that the exam cannot be completed within the available time or that questions are ambiguous or too difficult, the examiner will report this immediately to the examination board. The examination board then has the authority to impose an adjusted standard. This new standard must not have an effect that is demonstrably to the detriment of the students.
- R5.5 Oral exams and other parts of the examinations that are not on the academic calendar, are held at a time to be determined jointly by the examiner(s) and the student, and, if the student so wishes, within one month after the end of the teaching for the relevant exam.
- R5.6 In addition to OER2019 art.4.6,
- a During an oral test in which more than two students are assessed at the same time, at least two examiners must be present.
 - b Oral tests which are held for a series or group of students are not open to the public.
- R5.7 Members of the examination board can at any time attend an exam session, or delegate someone else as an observer. The position of an observer is explained to the participants of the test.
- R5.8 The examiner submits the result of the exam to BOZ CE no later than 15 working days after the date of the exam.

R5a Enrolling for exams

In addition to OER2019 article 4.3:

- R5a.1 The student must enrol for written exams ultimately on the date stated on the academic calendar. Enrolment is via Osiris, unless Bureau of Educational Affairs (BOZ) has defined another method of enrolment via a communication.
- R5a.2 If the student fails to enrol for a written exam in time, they are no longer entitled to take part in that session. If the student nevertheless shows up for the written exam, the examiner has the right to refuse to assess their work.

R5a.3 In situations beyond the student's control, the executive board of the examination board decides whether a student who was unable to enrol for the exam in time, will be allowed to take part in the session.

R6 Order during exams

R6.1 For each exam, the examiner assigns one or more examination supervisors who will ensure that the test session takes place in an orderly fashion. Student assistants cannot act as supervisor. BOZ CE will draw up a schedule of who will be supervising at the various exams.

R6.2 If the responsible examiner cannot be present in the room during an exam, he or she - or another specialist who can take on the role of examiner - must be reachable for the duration of the exam.

R6.3 During an exam, students must be able to identify themselves upon request by means of a proof of enrolment (student ID card).

R6.4 Students are deemed to take part in a written exam as soon as they receive the exam paper.

R6.5 Students are not allowed to have a mobile phone within reach in the exam room.

R6.6 The decision whether a student who arrives late is admitted to the exam is made by the supervisor. Students will not be admitted 30 minutes after the start of the exam.

R6.7 If a student arrives late, they cannot take part in the test if students have already left the test session.

R6.8 Students are not allowed to leave the exam room

a without the consent of the supervisor

b within the period during which delayed students may still be admitted (section 6).

R6.9 If a student arrives late or does not comply with the rules in sections 3 to 5, the examiner or the supervisor can immediately revoke the student's right to participate in the exam.

R6.10 In the case of fraud, the work of the student will not be assessed and the examination board is informed. The examination board can exclude the student from participation in the relevant exam for a maximum period of 1 year. In the case of preconceived fraud, the examination board can exclude the student from participation in (any) exams for a maximum period of 1 year.

Fraud is defined in the general UT Students' Charter (<https://www.utwente.nl/en/ces/sacc/regulations/charter/>)

Appendix RB1 specifies in further detail which practices during the making of written assignments are regarded as fraud.

R6a Access to, discussion of, and retention of exams

R6a.1 In addition to the provisions of OER2019 Article 4.9, the student is entitled to make copies of their assessed work at their own expense.

R6a.2 With respect to practical reports and assignments the rules for access to the student's own work (see OER2019 article 4.9) apply. The person in charge of the practical or the tutorial group, or the examiner determines:

- a. Whether the reports can be returned to the relevant students after the term of two years
- b. Whether copies may be made of the assessed reports.

R7 Rules in the event of an emergency

R7.1 In the event of an emergency or an expected emergency during or immediately before an exam, the exam is immediately postponed or interrupted. The examiner, in consultation with the programme director, determines the date for a new exam and whether and how the work already done will be assessed.

R8 Regulation for failing or passing a test

R8.1 In addition to OER2019 art. 4.1, the examination board uses the following regulation for passing or failing a test:

- a If the non-rounded grade ends in .50 or higher, the grade is rounded to the next higher full number.
- b Grades between 0 and 1.49 are rounded to 1.
- c Assessments of parts of courses are expressed in a grade of 1 to 10, with the possible addition of one decimal. Unless indicated otherwise by the examiner, a part of a course has been completed successfully if the rounded grade is at least 5.50.
- d If not all parts of the assessment for a course have been completed successfully in the quarter(s) in which teaching in the relevant unit is offered, the final grade matches the lowest partial grade. If a partial grade is missing, the final grade is 'NVD' (see R8.3).
- e A student has officially passed the final CEM / CME examination when he/she has received a grade >5 for all parts of the examination.
- f With respect to the valid result, the examination board may deviate from the provisions in article 4.7 section 7 of the OER2019.

R8.2 If (part of) a course is assessed by more than one examiner, the responsible examiner/coordinator makes sure that they all use the same standards. The examiner keeps a record of the results of parts of an exam (tests, partial assignments) in their own administration.

R8.3 Assessment grades are normally expressed as a number between 1 and 10. These grades have the following meaning:

1	Very bad	5	Nearly sufficient	9	Very good
2	Bad	6	Sufficient	10	Excellent
3	Definitely insufficient	7	More than adequate		
4	Insufficient	8	Good		

Exam units may also be graded alphanumerically in the following manner:

C4	Compensated 4	O	Insufficient
C5	Compensated 5	V	Sufficient
NV	No show	VR	Exemption

NVD	No pass	HNTD	Not required ¹
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- R8.4 Results from other institutions included in the student's exams programme by permission of the examination board will not be translated into the evaluation system of the UT. Sufficient results are registered with 'V' and insufficient results with 'O'. The volume of the course is converted to EC.
- R8.5 The result of the final examination has not been established until all parts of the final examination have been passed and the graduation presentation of the master thesis - as the last part of the final examination - has been held.
- R8.6 If the student meets the requirements for officially passing the examination, the graduation committee is authorised to declare that the candidate has passed the examination and to perform the resulting proceedings (or to have them performed).
- R8.7 In deviation from the provisions in R8.5, the executive board of the examination board may, in special cases, upon a reasoned written request by the student, allow deviation from the requirement in article R8.5 that the graduation presentation must be the last part of the final examination. As soon as the student has passed all parts of the final examination and meets all official requirements for graduation, the executive board of the examination board can perform all the resulting proceedings (or have them performed).
- R8.8 The examination board or the examiner determines if the candidate meets all requirements for taking (a part of) the examination.
- R8.9 A student who does not meet the criteria to officially pass the examination can submit a reasoned request to the examination board to establish whether he/she has passed the examination.
- R8.10 The examination board will communicate its decision concerning the request referred to in R8.9 and the reasons for its decision to the student, in writing, no later than two months after receipt of the request.
- R8.11 In the event of a resit or addition to an assignment that counts as a test or part of a test, the highest possible grade is a 6. A resit or addition to an assignment is only possible in the academic year in which the course is offered.

R9 Cum Laude (with distinction)

- R9.1 The examination board draws up a with distinction scheme for the CEM and CME master's programmes.
- R9.2 The scheme comprises the following criteria:
- a If a student demonstrates exceptional ability during the master examination, the words "Cum Laude" may be included on their degree certificate.
 - b The following conditions must be met to qualify for this:
 - i The weighted average of the grades for the parts of the final examination, excluding the final grade for the master thesis, is at least 8.0. Parts for which no assessments in the form of a grade are given or for which the student was exempted are disregarded for this calculation;
 - ii The minimum grade for all parts of the examination is 7;

¹ This occurs when another course has been assigned as a replacement for a part of the examination

- iii The number of exemptions in the sense of OER2019 article 3.4 does not exceed one-third of the volume of the programme.
- iv The final grade for the master thesis is at least 8.0;
- v The master's programme was completed within 2.5 years, unless special circumstances, for the assessment of the examination board, justify a longer delay. Special circumstances are, in any case, circumstances recognized as a condition for the granting of graduation support.

When there are special circumstances, the examination board has the right to let the student graduate with distinction if he or she does not fully meet requirements i to v under R9.2b.

- c If the nominal duration of the programme has been exceeded by more than 6 months, the president of the graduation committee or the programme director can make a reasoned request to the examination board to award the predicate 'cum laude'. The predicate 'cum laude' is granted when all members of the examination board express their consent.
- d "Cum Laude" shall not be awarded if the student has previously been found to have committed fraud or plagiarism during the completion of the pre-master or master programmes.

R10 Certificates and registration

- R10.1. The examination board issues a certificate as proof that the final examination was passed successfully. In deviation from OER2019 art. 5.4 section 1, the following applies to the signing of the degree certificate:
 - a. If the student passed the examination in the manner indicated in R8, the certificate is signed by at least two members of the graduation committee mentioned in the programme-specific appendix q 3.3, who established the result of the final examination. If no two members of the graduation committee are present at the graduation presentation to sign the certificate, a member of the examination board must also sign the certificate
 - b. In all other situations the degree certificate is signed in accordance with OER2019 art. 5.4 section 1
- R10.2. The parts of the examination and their assessment are listed in an appendix that is part of the degree certificate. Also listed are any units that are not part of the examination, that were tested before a decision was made concerning the result of the examination, provided that the student successfully passed these units.
- R10.3. The appendix to the master degree is included in a degree supplement. The objective of this supplement is to provide insight into the content of the completed programme for the purpose of international identification of the programme.
- R10.4. If the examination board has granted the special designation 'cum laude' (see R9) to the student, this is stated on the certificate.
- R10.5. A student to whom no degree certificate as referred to in R10.1 can be awarded, will upon request receive a statement to be issued by the examination board, specifying at least the successfully passed exams (WHW art. 7.11 section 4).
- R10.6. Bureau of Educational Affairs (BOZ) is responsible for the registration of assessments and of the results of examinations and parts of examinations.
- R10.7. Bureau of Educational Affairs (BOZ) registers which certificates have been issued to a candidate. No registered data on the candidate, with the exception of information

on the issued certificates, will be provided to other persons than the candidates themselves, except to:

- a. The participants in exam meetings;
- b. The members of the examination board;
- c. The student counsellors;
- d. The board of appeal for examinations;
- e. The persons to whom the faculty has entrusted activities relating to applications for financial support from the graduation fund;
- f. The study adviser;
- g. The programme director;
- h. The programme coordinator;
- i. The Dienst Uitvoering Onderwijs (DUO).

R11 Exemptions

In addition to OER2019 art. 3.4, the following applies:

- R11.1. A request for exemption from the obligation to take parts of examinations or to participate in practical exercises must be submitted to the examination board via email.
- R11.2. The student will be given the opportunity to be heard before a decision is made whether a request for (partial) exemption is rejected.
- R11.3. The examination board may grant standard exemptions to specific groups of students.
- R11.4. Exemptions are documented in an official decision, signed by or on behalf of the executive board of the examination board.
- R11.5. Courses that were part of a bachelor's programme cannot be a reason for exemption from parts of the master's programme.
- R11.6. The examination programme can exist for up to a maximum of 50% of courses (excluding the Preparation MSc thesis and the MSc thesis project) that were also part of another examination programme (at the University of Twente or elsewhere). In all situations the student must meet the intended learning outcomes of the programme.

Appendix RB1

In addition to the information in the Students' Charter, the following further defines the concept of "fraud" in the context of written assignments. Since there are various types of individual assignments and group assignments, further definition of "fraud" is necessary.

In the context of assignments, the following additional rules apply:

1. Individual assignments

A single author is responsible for the assignment. This author receives an individual assessment on the basis of the assignment. Unless explicitly defined otherwise by the lecturer in the assignment description, it is not allowed to hand in a jointly drawn up or written assignment as an individual assignment.

2. "Individual" group assignments

The members of the group are responsible for parts of the report. The responsibility for each part of the report is clearly indicated. Unless explicitly defined otherwise by the lecturer in the assignment description, it is not allowed to use (parts of) work by other groups or persons.

3. "Joint" group assignments

The group as a whole is responsible for the complete content of the report, even though each member of the group has written a particular part of the report. Unless explicitly defined otherwise by the lecturer in the assignment description, it is not allowed to use (parts of) work by other groups or persons. The following applies to a "joint" group assignment:

- The contribution by each member of the group does not need to be indicated;
- Each member of the group is responsible for the prevention of plagiarism and fraud;
- In the event of fraud, the penalty may be applicable to all members of the group.

In the event of plagiarism/fraud the provisions of article R6.10 will apply.

Appendix RB2

The composition of the examination board for Civil Engineering is as follows:

prof.dr.ir. A.Y. Hoekstra	Water Engineering and Management	President
ing. K.M. van Zuilekom	Engineering Technology	Secretary
prof.dr.ir. A.G. Doree	Construction Management and Engineering	
dr.ir. M.J. Booij	Water Engineering and Management	
ir. J.P. Boutkan	Province of Overijssel	External member
dr. J.T. Voordijk	Construction Management and Engineering	

The executive board of the examination board consists of the president and the secretary. The examination board can be reached by e-mail at examinationboard-ce@utwente.nl